



U.S. Department of Energy
Energy Efficiency and Renewable Energy

federal energy management program

FPL - PAFB Partnership Comprehensive Energy Program

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May 1, 2007





Patrick Air Force Base

- Home to the USAF 45th Space Wing
 - 920th Rescue Wing
 - Air Force Technical Applications Center
 - Defense Equal Opportunity Management Institute
- 2 FPL and AF Substations
- 19 mW Peak Demand
- \$6,000,000/yr in Energy
- 1900 Personnel
- 4 Miles of Shoreline



Mission

To assure access to the high frontier and to support global operations.

Vision

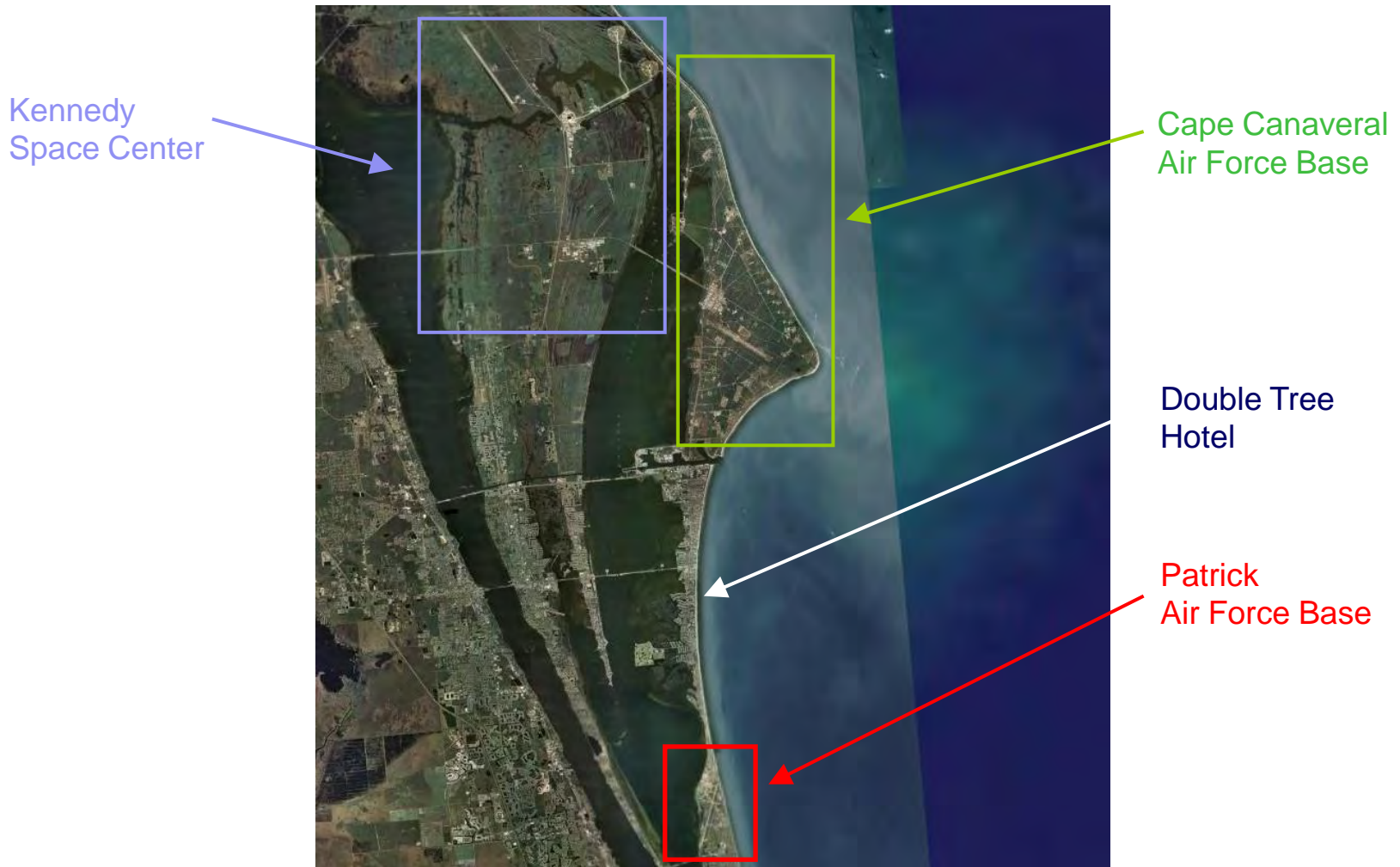
To provide the world's most responsive, reliable and cost-effective access to space.

Motto

Control of the battlefield begins here.



Florida's Space Coast





Florida's Space Coast





FPL Group and FPL

Third largest investor-owned electric utility in the nation

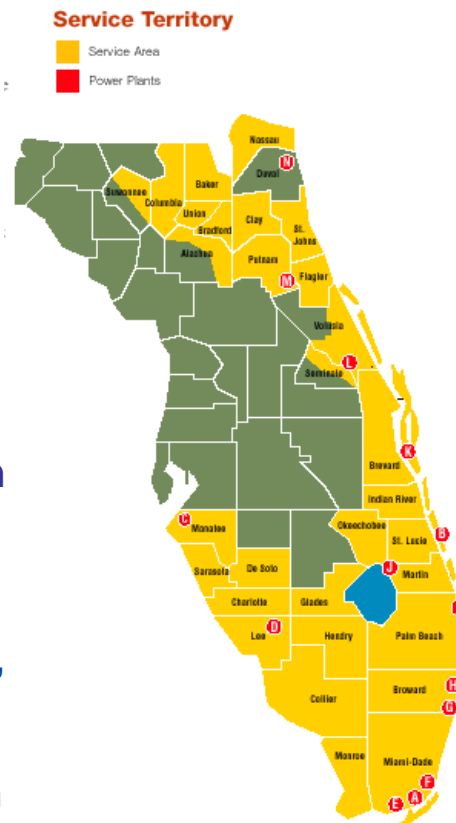
The largest electric producer from renewable sources wind and solar.

Traditionally ranked #1 nationally in implementation of energy conservation

An integrated energy services company providing customized solutions to governmental, commercial, and industrial customers

A leader in environmental stewardship having been recognized with over 25 environmental awards

Recognized as having one of the best Natural Disaster Response Plans in the Nation





Building on Past Success

In 1995, the 45th Space Wing and FPL executed one of the first Basic Ordering Agreements in the country.



45th Space Wing UESC Projects	Amount	Year
VIB Lighting	\$266,474	1995
CCAFS Lighting (LP2)	\$455,726	1996
PAFB/AFTAC Lighting	\$230,201	1996
CCAFS Lighting (LP1)	\$640,078	1996
PAFB Hospital Lighting	\$147,083	1997
CCAFS ROCC Generators	\$3,185,398	1997
PAFB Lighting (LP3)	\$517,279	1998
PAFB Generators/EMCS	\$4,271,113	2000
PAFB Phase 1 Comprehensive	\$3,780,000	2006
Subtotal	\$13,493,352	



The Partnership

In 2000, FPL and the 45th Space Wing at PAFB joined in a partnership for Energy and Demand Savings at the Florida Base.

The cornerstone of the Partnership was the development and implementation of a Base-Wide Comprehensive Energy Program (CEP)





Comprehensive Energy Program



A comprehensive systematic program to implement a series of energy, demand and water savings projects over the entire Base utilizing a holistic view instead of a building by building or system by system approach.



Comprehensive Energy Program

The Program is based on 2 key elements

- 1. *A strategic plan*** to logically and systematically approach the numerous variety of buildings and energy systems
- 2. *Executing UESC contracts*** of economically justifiable projects



Strategic Plan

The Strategic Plan is Based on a Base-Wide Audit (BWA) of PAFB

- Approximately 200 buildings and structures
- Completed in 2001
- Logically grouped by size, location, and use
- Resulted in five phases or projects
- Demonstrated compliance with energy goals





- Phase 1
- Phase 2
- Phase 3
- Phase 4
- Phase 5





Base-Wide Audit

Energy Conservation Measures

Base-Wide Energy Management System
Central Chiller Plants
Decommission Steam Plant
Lighting
Ground Source Heat Pumps
Thermal Energy Storage
Renewables
Water Savings Technologies
Building Envelope
FPL Load Control Program
Solar Pool Heating



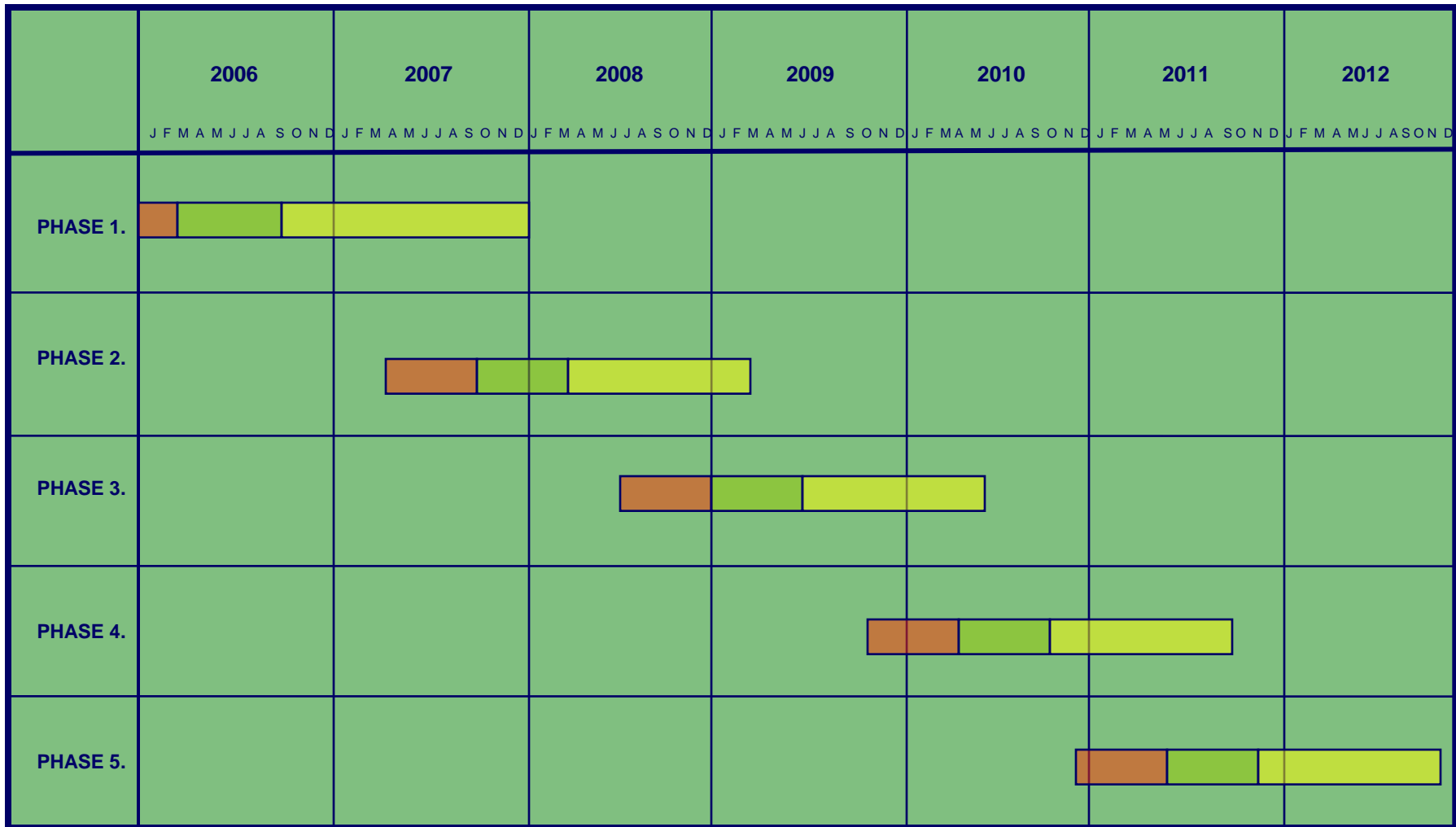


Results of Base-Wide Audit

Results of Base-Wide Audit						
Phase	General Description	Savings				
		kWd	kWh/yr	Therms/yr	MMBTU/yr	\$/yr
1	500 Block	107	2,048,526	65,273	13,715	\$259,509
2	200/300/400 Block	477	4,166,444		14,220	\$303,774
3	600/700/800/900 Block	542	6,586,134		22,478	\$461,446
4	1100/1300/1400/Other Block	299	5,365,738		18,313	\$363,979
5	Base Housing	57	912,000		3,113	\$60,192
	Total	1,482	19,078,842	65,273	71,839	\$1,448,900



CEP Implementation Schedule



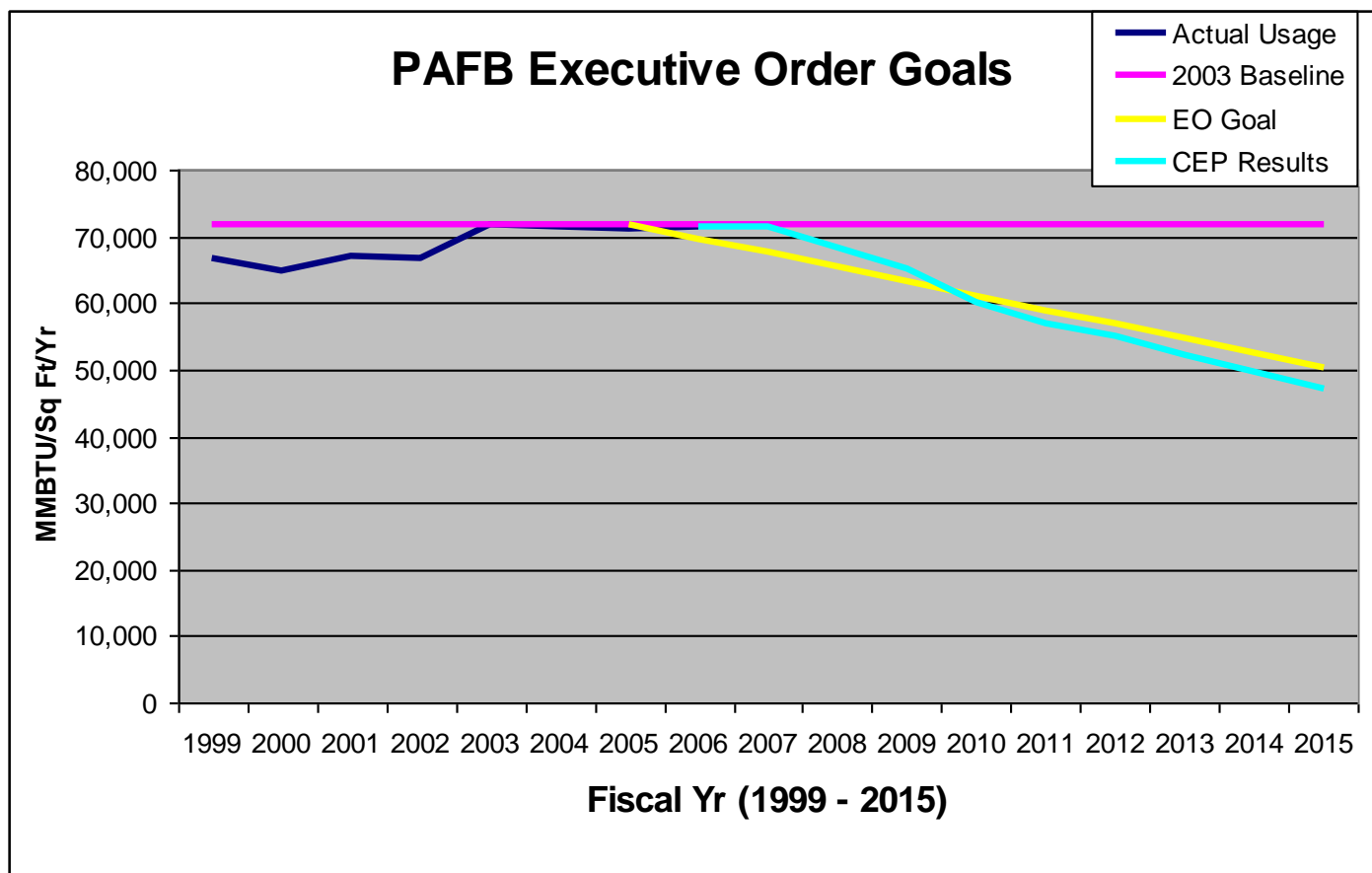


CEP Impact on Energy Goals

Patrick AFB Energy Goals				
Year	Actual MMBTU	Total Sq. Ft.	Actual BTU/sq.ft./yr	Goal MMBTU/sq.ft./yr
2003 Baseline	298,296	4,267,123	69,906	69,906
2004	305,035	4,267,123	71,485	69,906
2005	301,143	4,267,123	70,573	69,906
2006	308,786	4,044,321	76,351	67,808
2007				65,711
2008				63,614
2009				61,517
2010				59,420
2011				57,323
2012				55,225
2013				53,128
2014				51,031
2015				48,934

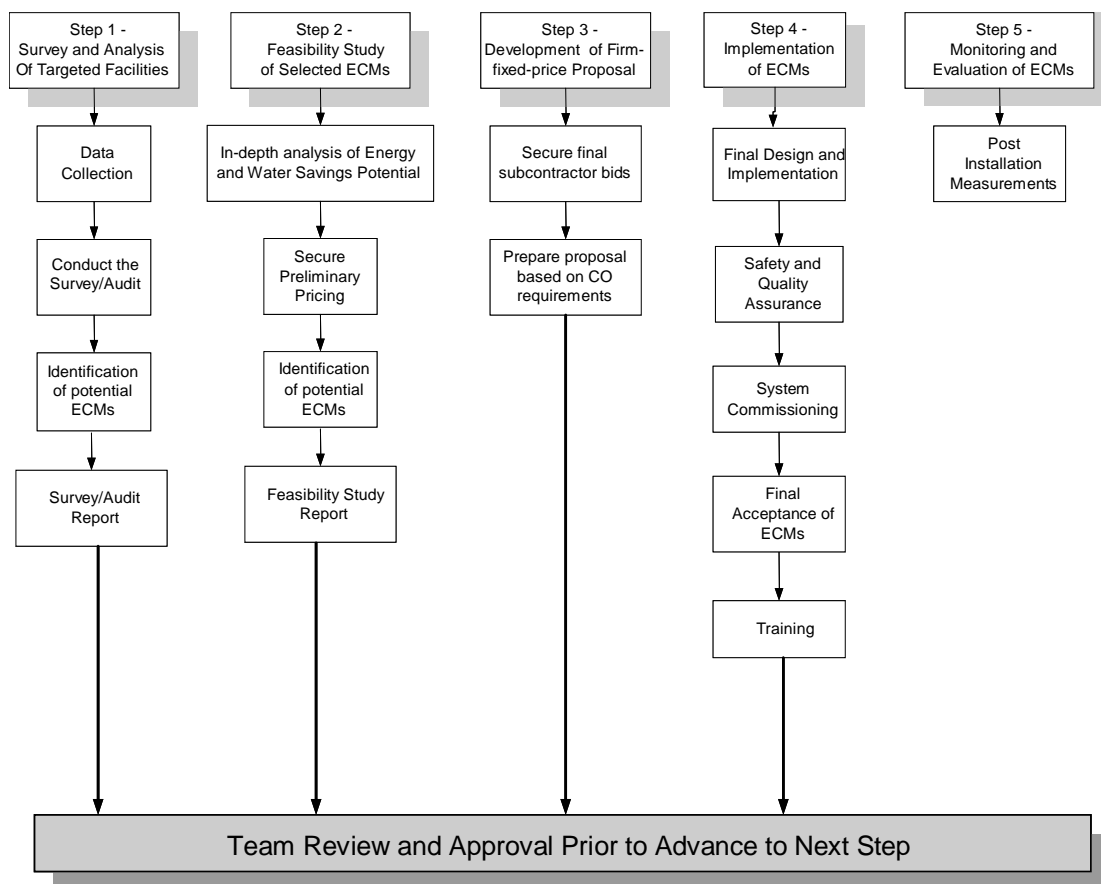


CEP Impact on Energy Goals





FPL/PAFB Development Process





Phase One Project

Executed in September, 2006

- 500 Block Buildings, \$3,780,000
- Design/Build
- Energy Conservation Measures:
 - Two Central Chiller Plants
 - Expansion of the EMCS
 - Decommission of Central Steam Plant
- Significant O&M Savings
- Significant Avoided Future Capital Expenses

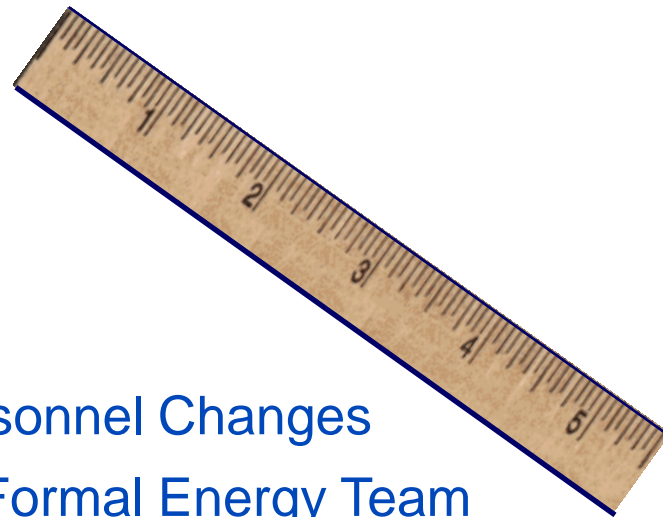




Phase One Project

Lessons Learned

- Better Coordination During Personnel Changes
- Formation and Participation of Formal Energy Team
 - Contracting
 - Civil Engineering
 - Finance
 - Environmental
 - Legal
 - HVAC Shop
- Development as a Team Effort
- Maintain a Firm Schedule





Phase Two Project

Notice to Proceed April, 2007

- 200/300/400/500 Block Buildings
- Formal Energy Team Identified
- Feasibility Study Underway
 - Central Chiller Plant
 - Expansion of the EMCS
 - Lighting
 - TES
- New Resource Efficiency Manager



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Questions?